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UNCINULA MACROSPORA, Peck.—On *Ulmus Americana*, Bluff Lake, Oct., '86.

UNCINULA SALICIS (?) [DC.] Winter.—On *Salix*, sp., Cheltenham, Oct., '85; *S. cordata*, Lake View, Aug., '86.

PODOSPHÆRA OXYACANTHÆ (DC.) DBy.—On *Prunus Cerasus*, Englewood, Sept., '85; Fish Lake, Oct., '86. Frequently accompanied with *Cicinobolus Cessatii*, DBy.

MICROSPHÆRA ALNI (DC.) Winter.—On *Corylus Americana*, Palatine, Aug., '86; *Euonymus atropurpureus*, Bluff Lake, Oct., '87; *Forestiera acuminata*, Indian Lake, Sept., '86, Oct., '87; *Lonicera glauca*, Lake View, Aug., '86; *Sambucus Canadensis*, Cheltenham, Oct., '85, Lake View, Aug., '86, Bluff Lake, Oct., '86; *Syringa vulgaris*, Cheltenham, Oct., '85, Englewood, Oct., '85, Chicago, Aug., '86; *Lonicera glauca*, Lake View, Aug., '86.

MICROSPHÆRA DIFFUSA, C. & P.—On *Desmodium Canadense*, Cheltenham, Oct., '85, Lake View, Aug., '86; *D. canescens*, Lake View, Aug., '86.

MICROSPHÆRA ELEVATA, Burrill.—On *Catalpa*, sp., East St. Louis, Oct., '86.

MICROSPHÆRA QUERCINA (Schw.) Burrill.—On *Quercus imbricaria*, Bluff Lake, Nov., '86; *Q. macrocarpa*, Bluff Lake, Oct., '87.

MICROSPHÆRA RUSSELLII, Clinton.—On *Oxalis corniculata*, var. *stricta*, Palatine, Aug., '86, Bluff Lake, Oct., '87.

MICROSPHÆRA SEMITOSA, B. & C.—On *Cephalanthus occidentalis*, Bluff Lake, Oct., '86.

MICROSPHÆRA SYMPHORICARPI, Howe.—On *Symphoricarpus vulgaris*, Bluff Lake, Oct. '86.

SYNOPSIS OF THE NORTH AMERICAN SPECIES OF HYPOXYLON AND NUMMULARIA.

BY J. E. ELLIS AND B. M. EVERHART.

I. Macroxylon. Large, indurated, irregular, fibrous within.

a. Perithecia monostichous.

HYPOXYLON BROOMEIANUM, B. & C.*—Grev., IV, p. 94. On rotten logs. South Carolina, Rav., No. 1894. Irregular, brown, about $1\frac{1}{4}$ inches across, with a raised obtuse margin, about $\frac{1}{3}$ of an inch thick, brownish (within); surface quite even, with the exception of the punctiform ostiola; asci linear; sporidia uniseriate, elliptic, sec. Cke., in Grev., XI, p. 124, $12 \times 14 \mu$.

*For the sake of brevity, lists of synonyms and references to the different Exsiccati have been mostly omitted. The subgenera are those adopted by Cooke in Grevillea.

b. *Perithecia stratose*.

HYPOXYLON OVINUM, Berk.—Grev., XI, p. 129. On wood, Orizaba, Mexico. Hemispheric or confluent-elongated, dark purple, hard, smooth, subshining, dark within; perithecia stratose, black, subglobose; ostiola obsolete; asci cylindrical; sporidia elliptical, dark, $16-18 \times 7 \mu$.

HYPOXYLON PETERSII, B. & C.—Journ. Linn. Soc., X, p. 384. On rotten oak. Alabama (Peters), on dead wood; Cuba (Wright); on oak logs, Ohio and Kentucky (Morgan). Stroma pulvinate, depressed-ob-conic, centrally attached with a spreading margin, $3-4 \times 2\frac{1}{2}-3$ cm. across, covered at first by a thick, coreaceo-membranaceous veil which soon disappears except around the margin; substance corky-fibrous, hard, dull umber color, becoming darker outside; perithecia crowded in several layers, subglobose or sub-elongated, $\frac{1}{2}-\frac{3}{4}$ mm., with slender necks ending in distinctly prominent papilliform ostiola; sporidia uniseriate or subbiseriate above, narrowly-elliptical, brown, $6-8 \times 3\frac{1}{2}-4 \mu$; asci cylindrical (p. sp.), about $40 \times 5 \mu$ or including the slender base 60μ long.

The foregoing description is from Morgan's Ohio specimens, which have been compared by Dr. Farlow with specimens in Herb. Curtis. In the original description, in Linn. Journ., no mention is made of the thick, membranaceous veil, which is a striking and unusual character.

II. *Sphæroxylon*. Stroma superficial, globose or subglobose.

a. Externally colored, not black.

HYPOXYLON COCCINEUM, Bull. (*Sphæria fragiformis*, Pers.)—Stroma erumpent-superficial, subglobose, generally from $\frac{1}{4}-\frac{3}{4}$ cm. in diameter, deep brick-red when mature, often paler when young, solitary or subconfluent; perithecia peripheric in a single layer, small, subglobose, slightly prominent; asci cylindrical, spore-bearing part $70-80 \times 6-7 \mu$, paraphyses abundant, simple; sporidia uniseriate, opaque, inequilateral-elliptical, $10-12 \times 4-5 \mu$. Generally on bark of dead beech trees, but also on oak, willow, birch, and some other trees. Common throughout the United States and Canada as well as in Europe. This and the next species are often accompanied by an abnormal growth (*Institale acariforme*, Fr.) consisting of a spreading fringe of somewhat flattened, ochraceous or rust colored, more or less branched processes surrounding the base of the stroma and about equal in length to its diameter and bearing an abundance of very minute, obovate, subhyaline conidia. Whether this should be considered the true conidial stage of the *Hypoxylon* is doubtful, as its occurrence is exceptional. The case is in some respects analogous to that of *Sphæria flabelliformis*, Schw., and the *Xylaria* from which it springs, but with this difference: the affected *Xylaria* is always abortive, while the *Hypoxylon* surrounded with its conidial fringe matures its fruit.

HYPOXYLON HOWEIANUM, Pk.—24th Rep. N. Y. State Mus., p. 98. On dead limbs of deciduous trees. N. Y. (Peck), on *Ostrya Virginica*; Iowa (Holway), on dead standing shrubs and fallen limbs of oak; N. J. (Ellis), on dead limbs; Pennsylvania (Everhart & Rau); Ohio (Morgan);

Nebraska (Miss L. S. Dond). Stroma depressed-globose, 5–15 mm. across, light brick-red, nearly smooth but closely punctate by the minute black ostiola, solitary or subconfluent; perithecia peripheric, monostichous, minute, ovate, $\frac{1}{4}$ – $\frac{1}{3}$ mm. high; asci (spore-bearing part) 45–50 x 5 μ , with a slender, thread-like base, 35 μ long; sporidia uniseriate, opaque, subinequilateral-elliptical, 6–7 x 3–3 $\frac{1}{2}$ μ . The substance of the stroma is of a blue-black color, and a vertical section shows a radiate fibrous structure with one or two faint concentric zones. The interior of the stroma in *H. concineum* is homogeneous in structure and of an even gray-black color. That species is also distinguished from this by its smaller stroma, roughened by the slightly projecting perithecia ($\frac{1}{3}$ – $\frac{1}{2}$ mm. in diameter) and by larger asci and sporidia. In the Nebraska specimens the perithecia are distinctly prominent, but in other respects they do not differ from the normal form.

HYPOXYLON COMMUTATUM, Nitschke, var. **HOLWAYANUM**, S. & E.—Mich., II, p. 570; Sacc., Syll., II, XXV, Addenda. On bark of dead oak, Decorah, Ia., and on bark of dead plum trees and (maple [?]), Vermillion Lake, Minn. (Holway). Stroma erumpent-superficial, solitary or subconfluent, subglobose, hemispherical or oblong, $\frac{1}{4}$ – $\frac{1}{2}$ cm. across, dull purplish-red, becoming black, grayish-black within, roughened by the distinctly prominent, ovate, monostichous, $\frac{1}{4}$ x $\frac{1}{2}$ mm. perithecia; asci (spore-bearing part) 75–80 x 6–7 μ , with abundant paraphyses; sporidia uniseriate, opaque inequilateral-elliptical, 10–12 x 4 $\frac{1}{2}$ –5 $\frac{1}{2}$ μ . According to Saccardo, the perithecia are larger and more prominent than in the typical form, which is described by Nitschke as having the stroma pulvinate, depressed, rarely hemispherical or nearly globose, solitary or connate with globose, crowded, subdistichous peripheric perithecia and sporidia, 10–12 x 6 μ . The smaller stromata resemble those of *H. fuscum*, from which it is distinguished by its smaller sporidia. From *H. multiforme* it is distinguished by its larger, darker sporidia.

HYPOXYLON ENTEROMELUM (Schw.)—*Sphæria enteromela*, Schw., Journ. Acad. Philada., Vol. V, p. 10. Erumpent from cracks in the bark of dead chestnut trees, Bethlehem, Pa. (Schw.). Rather rare. Stromata pulvinate, often longitudinally confluent for 6 inches in length, rusty red, surface not granulated, variable in shape, subcompressed, very black (within), covered above with a furfuraceous, pulverulent, rust-colored bark. Immersed in the stroma are a few perithecia of larger size, the others being minute, peripheric, globose and black. The stroma stains the inner bark black. In the nature of the outer layer of the stroma this is allied to *H. coccineum*. Sec. Cooke in Grev., XI, p. 123, the sporidia are 10 x 4 μ .

HYPOXYLON VERA CRUCIS, Berk. and Cke.—Grev. XI, p. 129. On rotten wood, Vera Cruz (Salle). Subglobose, superficial, often confluent (1–2 cm. in diameter), bright rust color, sooty black within; perithecia of medium size, ovate, peripheric, somewhat prominent; asci cylindrical; sporidia elliptical, attenuated at each end, brown, 20 x 8 μ .

HYPOXYLON ARGILLACEUM (Pers.)—*Sphæria argillacea*, Pers. Syn., p. 10. On trunks of ash; more rarely on beech and birch. Bethlehem, Pa. (Schw.); Canada (MacLagan); on beech, N. Y. (Peck). Stromata erumpent-superficial, subglobose, solitary, rarely connate, clay color, becoming black within; perithecia in a single layer (monostichous), rarely irregularly polystichous, ovate, small, crowded, somewhat prominent, minutely mammillose; conidial layer white, becoming stag color or clay color; conidia small, ovate, hyaline on long, sparingly branched, septate sterigmata; asci cylindrical, with very long, slender pedicels, spore-bearing part $140 \times 16 \mu$; paraphyses simple, thread-like, longer than the asci; sporidia uniseriate, broad ovate, elliptical or subinequilateral, obtuse, opaque, $18-22 \times 9-10 \mu$ ($22-24 \times 10-12 \mu$ Sacc. in Syll.) This species, of which we have seen no specimens except those sent from England by Dr. Plowright, seems to be easily recognized by its clay-colored stroma and large sporidia.

HYPOXYLON NOTATUM, B. & C.—Grev. IV, p. 50. On bark of *Celtis*. Carolina (Ravanel); on *Viburnum*, Pennsylvania (Michener). "Perithecia few, rather large, crowded into a little pulvinate mass clothed with rubiginous powder; ostiola at length prominent, truncate, with a central perforation. The sporidia, which are shortly cymbæform, vary a little in size.

In the specimens in Rav. Fungi Car. Exsicc., IV, No. 36 (the only ones we have seen) the little pulvinate erumpent masses (stromata) are 1—2 mm. across, each containing 2—6 perithecia having thick coriaceous walls and about $\frac{1}{2}$ mm. in diameter. The asci are surrounded by abundant paraphyses and have the spore-bearing part $55-60 \times 8 \mu$. Sporidia uniseriate, short cymbiform, opaque, $12-14 \times 8 \mu$, as noted by Cke. in Grevillea XI, p. 123. The interior of the stroma shows a slight yellowish tint like that of *H. Sassafra*s, Schw., but not as distinct. The substance of the stroma is quite soft, almost carnose.

HYPOXYLON FUSCUM (Pers.)—Syn. p. 12. On dead alder, birch, hazel, beech and other deciduous trees. Common throughout the United States and Canada. Stroma erumpent-superficial, solitary or subconnate, depressed-pulvinate, or hemispherical, generally 1—3 mm. diameter, dark purplish-red, finally black, somewhat uneven from the slightly projecting, small, closely packed, irregularly monostichous, subglobose perithecia with minute mammilliform ostiola; conidia very minute, borne singly at the extremities of short sparingly branched sterigmata; asci cylindrical on long pedicels, spore-bearing part $80-90 \times 7-8 \mu$; paraphyses filiform; sporidia uniseriate, subinequilateral-elliptical, opaque and, in the specimens examined, $11-14 \times 5-6 \mu$ ($12-16 \times 5-7 \mu$, Sacc.)

HYPOXYLON BOTRYS, Nitsch.—Pyr. Germ., p. 34. On bark of dead willow tree, Pointe a' la Hache, La. Rev. A. B. Langlois, No. 376. Stromata erumpent, aggregated and subconnate or oftener tuberculiform, 1—2 mm. in diameter, consisting of simple aggregations of perithecia

with very little stromatic material interposed, golden yellow at first, finally black, about $\frac{1}{2}$ mm. in diameter, about $\frac{1}{4}$ of the upper part of the perithecia projecting; asci cylindrical, 8-spored with filiform paraphyses; sporidia uniseriate, narrow-elliptical, brown, mostly two-nucleate, $12-14 \times 5-7 \mu$. The inner substance of the bark under the stroma is whitened. We have no authentic specimens of this species, but the Louisiana specimens agree so well with the description of *H. botrys*, Nits., that we have little hesitation in referring them to it.

HYPOXYLON BICOLOR, E. & E.—JOURN. MYCOL., II, p. 88. On dead limbs of *Quercus virens*, Point a' la Hache, La. Rev. A. B. Langlois, No. 344. Stroma tubercular-hemispherical, about 2 mm. across, scattered, somewhat uneven from the slightly prominent perithecia, dull ferruginous-purple, becoming darker, within yellow, becoming darker with age; ostiola impressed, punctiform; perithecia subperipheric, closely packed, about $\frac{1}{2}$ mm. in diameter; asci narrow-cylindrical, with a slender base, about $100 \times 6 \mu$; sporidia in a single series, narrow-elliptical or subnavicular, pale yellowish at first, then opaque, $1-2$ -nucleate, $9-12 \times 3\frac{1}{2}-4\frac{1}{2} \mu$, ends subacute. Allied to *H. fuscum* but differs in its impressed ostiola and smaller stroma, yellow inside.

Note.—Sec. Cooke, in Grev., XI, p. 127, *Hypoxylon bicolor*, B. & C., is a *Diatrype*.

b. Stroma externally black.

HYPOXYLON MULTIFORME, Fr.—On dead birch. N. H. (Farlow); N. Y. (O. F. Cook); Mich. (Miss Minns); Minnesota (Holway); Canada (Macoun). *Alnus*, *Sorbus*, *Quercus* and *Castanea* are also given as habitats of this species. Stroma erumpent and often margined by the ruptured bark of various shapes but on birch usually transversely elongated, oblong or elliptical, somewhat flattened above, $1-1\frac{1}{2}$ cm. long by $\frac{1}{2}-\frac{3}{4}$ cm. wide or by confluence 4 or more cm. long, dull rusty red at first, finally black and smooth; perithecia irregularly monostichous, rather large, globose, distinctly prominent with papilliform ostiola; conidial layer dirty yellowish, becoming darker, conidia very small, obovate; asci cylindrical, on long pedicels, spore-bearing part $70-90 \times 6 \mu$; paraphyses slender, simple, longer than the asci; sporidia uniseriate, inequilateral-oblong, pale brown, $9-10\frac{1}{2} \times 3\frac{1}{2} \mu$ ($10-12 \times 4-5 \mu$, Sacc.)

Specimens on *Alnus* sent from British Columbia by Dr. Macoun have the stroma depressed-hemispheric, $1-\frac{1}{2}$ cm. across and the perithecia less prominent, but the asci and sporidia are the same.

This is a widely-diffused species, being found throughout Europe, also in Kamtschatka and the elevated region of Nepal in central Asia. Its range appears to be northward. It is generally found on limbs from which the bark has not yet fallen, but is also said to grow on decorticated limbs and is then more effused. The specimens we have seen of this effused form seem rather to belong to *H. rubiginosum*.

HYPOXYLON TERES, Schw.—Syn. N. Am., No. 1178. On bark. Locality unknown. "Pulvinate, subterete-cylindrical, apex obtuse, rounded, surface tuberculose-undulate, rust-colored; stroma sooty black, surrounded and roughened by the immersed peripheric perithecia. The cylindrical, pulvinate, scattered stromata are about three lines high and $1\frac{1}{2}$ lines thick. In some respects allied to *H. rubiginosum*.

HYPOXYLON MALLEOLUS, B. & Rav.—Grev., IV, p. 49. On oak trees. Carolina (Ravenel); Florida (Dr. Marten, Calkins and Rau). Stroma globose, sessile, $1\frac{1}{2}$ cm. in diameter, black, ornamented by the papillose ostiola, each sunk in a shallow, circular depression about $\frac{1}{2}$ mm. across. A vertical section of the stroma shows the same radiate-fibrous, subzonate structure and shining black color seen in *H. Howeianum*. Perithecia peripheric, oval or elliptical in outline, forming a layer about 1 mm. thick, which readily separates from the inner mass of the stroma. The asci (which appear to be evanescent) have, in our specimens, disappeared, but there is an abundance of brown, fusoid, nearly straight sporidia, $18-22 \times 3-3\frac{1}{2}$ μ , ends subobtuse.

HYPOXYLON COHÆRENS, Pers.—Syn. p. 11. On bark of beech. Carolina (Ravenel); N. Y. (O. F. Cook); Penna. (Rau). Stromata erumpent-superficial, depressed-globose, about 2 mm. in diameter, continuously connate over a space of three or more centimeters across, of a dirty black color; perithecia mostly only 6—10 in a stroma, rather large and distinctly prominent, with papilliform ostiola; asci cylindrical, spore-bearing part about $22 \times 6 \mu$; sporidia uniseriate, short-navicular, brown, $9-11 \times 4-5 \mu$ ($12 \times 6 \mu$, Sacc.) The foregoing description is from the specimens in Rav. Car., III, No. 48. The conidial hymenium which clothes the young stromata is of a pale clay color, becoming cinereous; conidia obovate-subglobose, very small. The species is widely diffused and is found also on oak, *Nyssa* and maple. A small form, var. *minor*, is mentioned on decaying *Polyporus* in Borneo. In the old and blackened state, this species resembles outwardly some forms of *H. coccineum*, Bull., from which it differs in its smaller connate stromata and larger perithecia and in the different color of the young stroma.

HYPOXYLON MURRAYI, B. & C.—Grev., l. c. On dead bark. Massachusetts (Murray). "Gregarious, subglobose, a line or more broad, black without and within, densely papillose with the minute ostiola. It resembles externally *H. bomba*, Mont., except the densely papillose surface." Sporidia sec. Cke. in Grev., XI, p. 123, $13-15 \times 5-7 \mu$.

HYPOXYLON GLOMIFORME, B. & C.—Grev., l. c. On bark of *Quercus nigra*, Connecticut (Wright). "Gregarious, hemispherical, nearly $\frac{1}{4}$ inch wide, at first clothed with ferruginous powder, then black and shining, even; perithecia hidden without any external trace of ostiola; stroma dark brown." Sporidia sec. Cke., Grev., l. c., $14-15 \times 3\frac{1}{2} \mu$.

HYPOXYLON TURBINULATUM, Schw.—Syn. N. Am. On beech wood, Mt. Pocono, Pa. (Schweinitz). "Turbinate-pulvinate, applanate, subcon-

fluent, but with the stromata (pulvinuli) always distinct; perithecia larger than usual, not peripheric but scattered through the entire stroma even to the base; external surface granulated, pulverulent, rugose with the minute, rather prominent ostiola; stroma scanty, dirty whitish; clusters of perithecia arranged in a seriate manner so as to bear some resemblance to Hebrew letters and seated on a black crust which over-spreads the bark." Sporidia sec. Cooke, $12 \times 3\frac{1}{2} \mu$.

NEW SPECIES OF FUNGI FROM VARIOUS LOCALITIES.

BY J. B. ELLIS AND B. M. EVERHART.

SEPTORIA SANICULÆ, E. & E.—On living leaves of *Sanicula Marylandica*. Racine, Wis., November, 1887, Dr. J. J. Davis. Leaf mottled with small, irregular, subindefinite, brown spots, enclosing still smaller ($\frac{1}{2}$ —1 millim.), white spots, on each of which are 1—3 minute, black perithecia; sporules spiculiform, slightly curved, about $20 \times 1 \mu$ or less.

SEPTORIA NEPETÆ, E. & E.—On living leaves of *Nepeta Cataria*. Racine, Wis., June, 1887, Dr. J. J. Davis. Spots purplish-brown, with reddish or purplish border, rather irregular in outline, about two millim. in diameter, with a white center; perithecia mostly epiphyllous, lenticular, not very abundant; sporules nearly straight, nucleolate, 30 — $40 \times 1\frac{1}{2} \mu$.

SEPTORIA ASCLEPIADICOLA, E. & E.—On living leaves of *Asclepias incarnata*. Powers Lake, Kenosha county, Wis., June, 1887, Dr. J. J. Davis. Spots amphigenous, small (1—2 millim.), round, dull white, with a narrow, dark, distinctly-raised border, around which the leaf is stained purplish-red. The spots are often clustered together, 3—4 lying in contact with a common, raised border surrounding the whole; sporules linear-fusoid, nucleate, hyaline, 25 — 50×2 — $2\frac{1}{2} \mu$, ends mostly acute and one end generally a little thicker.

HELMINTHOSPORIUM HADOTRICHOIDES, E. & E.—On living but partly dead leaves of *Eragrostis major*. Faulkland, Del., September, 1887, A. Commons, No. 347. On elongated, white spots, or on dead tips of the leaves, mostly epiphyllous; hyphæ loosely tufted, erect, smoky-brown, continuous or with 1—2 septa, 30 — 35×6 — 7μ , the apex swollen so as to form a knob like the head of a pestle, 8 — 12μ in diameter. The hyphæ are finally proliferous, the axis of growth being prolonged by one side of the swollen head or tip, thus forming a series (2—4) of offsets or steps. The conidia are clavate-obovate or clavate-cylindrical, yellowish-brown.

HELMINTHOSPORIUM SUBOLIVACEUM, E. & E.—On dead bark of *Acer rubrum*, Clyde, N. Y., October, 1887. O. F. Cook. Subcæspitose in